

Countering IEDs and Explosive Hazards

By Mr. Robert G. Baker and Mr. Dorian V. D'Aria

As revealed in history, our military becomes increasingly better and more agile with each battle. Ours is the most dynamic and powerful country on this earth, because our military is willing to adapt and evolve. Change and advances in technology enable our country to continue to prosper and take the lead in the Global War on Terrorism. Since the Countermine Task Force was formed in 2001 (by the direction of the Commanding General, US Army Training and Doctrine Command [TRADOC]), the US Army Engineer School has been instrumental in developing the skills and tools needed to enable mobility through urban and complex terrain. This was accomplished while negating explosive hazards (EH) such as mines, booby traps, unexploded ordnance (UXO), and improvised explosive devices (IEDs). This article describes current initiatives and contains an overview of the collaborative agencies working to combat this threat.

The Countermine/Counter Booby Trap Center, which was created in January 2002, changed its name to the Counter Explosive Hazards Center (CEHC) in April 2004. The CEHC was formally recognized and approved by Headquarters, Department of the Army, on 18 November 2004 to function as the US Army integrator for all countermeasures involving EH (including mines, IEDs, and other EH that threaten US and allied forces). A key element is the prediction, detection, avoidance, and neutralization of EH, so commanders can maneuver unencumbered through urban and complex terrain.



The CEHC provides expertise not provided elsewhere in the Army's institutional training base. Additionally, the CEHC bridges the gap between emerging warfighter requirements and institutionalized training. Based on comments and mission analysis from the field, the CEHC develops new or improved capabilities, as well as the requisite tools to equip our soldiers, to counter EH on the battlefield.

The CEHC conducts explosive hazards awareness training (EHAT) to deploying forces, develops EH countermeasures, conducts new equipment training for commercial off-the-shelf equipment, produces training aids and programs of instruction, and assists in the identification and fielding of viable countermeasure solutions. In addition, the CEHC develops the intellectual and situational superiority of combat units through handbooks and new tactics, techniques, and procedures (TTP) to Active Army and Reserve Component units, government civilians, contractors, other US services, and allied forces. The CEHC provides eleven courses, which are

used to train approximately 4,000 students annually. Several are train-the-trainer-type courses to empower units to rapidly spread the latest TTP and engineer knowledge. Additionally, it assists with the integration of doctrine, organization, training, materiel, leader development, personnel, and facilities (DOTMLPF) assessments across the five tenets of IED defeat—predict, detect, prevent, neutralize, and mitigate—that were initially derived from the five fundamentals of assured mobility.

In addition to resident instruction, the CEHC develops exportable countermeasures, which are provided directly to field units for rapid implementation, as well as institutionalized into soldier, noncommissioned officer (NCO), and officer educational programs of instruction, new functional courses, training materials, field manuals, and emerging doctrine. The CEHC's Intelligence and Technology Branch continually searches to identify and anticipate evolving EH threats.

Another area where the CEHC is breaking new ground is in the development and training of counterterrorist military search techniques. This effort is in response to needs from the field to safely and methodically search for explosive materials and bomb making contraband, plus the requirement to locate and preserve forensic intelligence to crack terrorist infrastructures. The primary focus of this training is to teach the searchers to identify bomb makers and bomb making materials—prior to detonation—and preserve the evidence found.

Report Documentation Page			Form Approved OMB No. 0704-0188		
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE MAR 2005		2. REPORT TYPE		3. DATES COVERED 00-01-2005 to 00-03-2005	
4. TITLE AND SUBTITLE Countering IEDs and Explosive Hazards (Engineer, Volume 35, PB 5-05-1, January-March 2005)			5a. CONTRACT NUMBER		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S)			5d. PROJECT NUMBER		
			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Engineer Professional Bulletin,MANSCEN Directorate of Training,464 MANSCEN Loop, Suite 2661,Fort Leonard Wood,MO,65473-8926			8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)		
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 4	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



Figure 1. A man-portable kit contains specialized tools and equipment for search teams.

Based on proven British techniques against terrorists in Northern Ireland, Bosnia, and elsewhere, the CEHC training is designed to provide US forces with the technical skills, doctrinal capability, and tools to safely execute counterterrorist search missions. It has spiraled into a 15-day course with four main objectives: protect potential targets, gain evidence, gain intelligence, and deny enemy resources. During this course, which breaks into two tracks during the middle part of the course—Unit Searcher and Unit Search Advisor—the students undertake a number of practical exercises: in-person, vehicle, area, route, and occupied and unoccupied building searches. Additionally, the search advisors concentrate on the planning cycles that are crucial to ensuring successful search missions. To equip soldiers to perform these tasks, the CEHC has prepared a specialized man-portable search kit, which contains all the tools and equipment search teams require to execute this mission (see Figure 1). The CEHC is continually refining this kit and endeavoring to establish a standardized search kit that would be available through the regular supply system. This particular materiel solution crosses three of the five tenets of IED defeat—predict, detect, and prevent.

The Engineer School and CEHC have championed the establishment of a mine detection dog program and specialized search dog program. This effort led to the establishment of the 67th Engineer Detachment (Mine Dog), part of the 577th Engineer Battalion, 1st Engineer Brigade, Fort Leonard Wood, Missouri—and the creation of the “K9” additional skill identifier (ASI) for engineer soldiers trained as mine detection dog handlers. The specialized search dog program uses nonaggressive explosive detection dogs, which operate off-leash to search buildings, routes, vehicles, or other venues for explosive devices, weapons, or contraband. The Engineer School has already deployed mine dog and search dog teams into both Iraq and Afghanistan with resounding success. During one specific house search of a suspected vehicle bomb maker, a specialized search dog alerted on the explosive scent off an automobile starter located in the suspect’s garage. At the conclusion of the investigation, it was revealed that the suspect had bomb residue on his hands. He had transferred the residue to the starter while removing it from his car, after completing another project—making a bomb.

The CEHC also developed the doctrine and training for the Mine and

Explosive Ordnance Information Coordination Center (MEOICC) in Iraq. This is the US military’s first effort to develop a standardized doctrine, training, and organizational structure to track explosive threats in an area of responsibility. The MEOICC is our military counterpart to the national or regional Mine Action Centers (MACs) that are used during demining operations within a country. The MEOICC specifically supports military operations and objectives, provides a common operational picture (COP) of EH on the battlefield (using the Tactical Minefield Database [TMFDB]), and provides an interface with the MAC and nongovernmental organizations operating within the common battlespace.

The TMFDB is an automated tracking system to record, geographically locate, and display all known EH in the Iraq or Afghanistan theaters. This provides a COP for commanders and decision makers, a database for analysis, and maps and overlays to warn of danger areas. It also allows the sharing of information between US military and coalition partners or humanitarian/nation building agencies.

To accommodate all the training that is evolving, the CEHC will develop a state-of-the-art training center to be

completed in fiscal year 2006. The Engineer School's efforts have had congressional support, resulting in the appropriation of \$10.4 million for the construction of a CEHC and \$3.7 million for mine dog kennels to begin in fiscal year 2005. This is Phase I of an \$18 million construction effort to establish a permanent counter-EH training complex. It will provide specialized training areas and classrooms, search villages, a motor park for nonstandard counter-IED/mine equipment, and permanent mine dog facilities. It will also have adequate space for route and area clearance, enhancing the overall realism of the training. Until it is institutionalized throughout the force, operator and maintainer training for nonstandard counterexplosive equipment will be taught at this facility. All the activities will be colocated in one area on Fort Leonard Wood—the Humanitarian Demining Training Center, the 67th Engineer Detachment, and possibly a Department of Defense (DOD) mine dog training academy—which will provide better fusion and integration of the CEHC, forming a Counter Explosive Hazards Center of Excellence.

A major effort has been directed toward fighting the war on IEDs, and the Army was tasked to develop a DOTMLPF-integrated IED defeat strategy. To that end, TRADOC was

designated as the Army's specified proponent for IED defeat, and TRADOC designated the US Army Maneuver Support Center (MANSCEN) as the proponent for IED defeat DOTMLPF integration on 29 September 2004. MANSCEN then directed the CEHC to take the lead on this action and put together a DOTMLPF assessment and action plan, which eventually led to the development of the Integrated Capability Development Team (ICDT). The ICDT is responsible for evaluating capability gaps and ensuring proper vision on emerging countermeasures and institutional success in all efforts.

As part of the combined arms team, CEHC and the Engineer School work with numerous external agencies—such as the Rapid Equipping Force (REF) and the Joint Improvised Explosive Device Defeat (JIEDD) Task Force (TF)—to develop and field innovative counter-IED solutions. In October 2003, the Chief of Staff of the Army directed the formation of a JIEDD TF to orchestrate Army efforts to eliminate IED threats. The CEHC became a member of the advisory committee and works closely with the JIEDD TF. In June 2004, the US Army Central Command (CENTCOM) commander asked the Secretary of Defense for a synchronized DOD response to the IED threat. On 17 July

2004, the Deputy Secretary of Defense established an Army-led joint Integrated Process Team (IPT)—organized around the existing Army JIEDD TF—to focus DOD efforts to defeat the IED threat. The IPT identifies, prioritizes, and resources materiel and nonmateriel solutions in a synchronized response across the services and DOD, in coordination with interagency and international partners. The task force, augmented by joint services staff, continues to accomplish the counter-IED operational mission and provides necessary staff support to the IPT. Working together, CEHC, the Engineer School, and MANSCEN are part of a joint, interagency, and multinational counter-IED effort that integrates intelligence, training, technology, and materiel solutions into a holistic program.

As IED countermeasure solutions are developed by the REF and JIEDD TF, the CEHC helps develop operational TTP, training packages, and other DOTMLPF integration requirements. One system under development that covers a combination of DOTMLPF integrations is called the "Hunter-Killer (see Figure 2)." This system is an enhanced route clearance concept, consisting of mine-protected vehicles

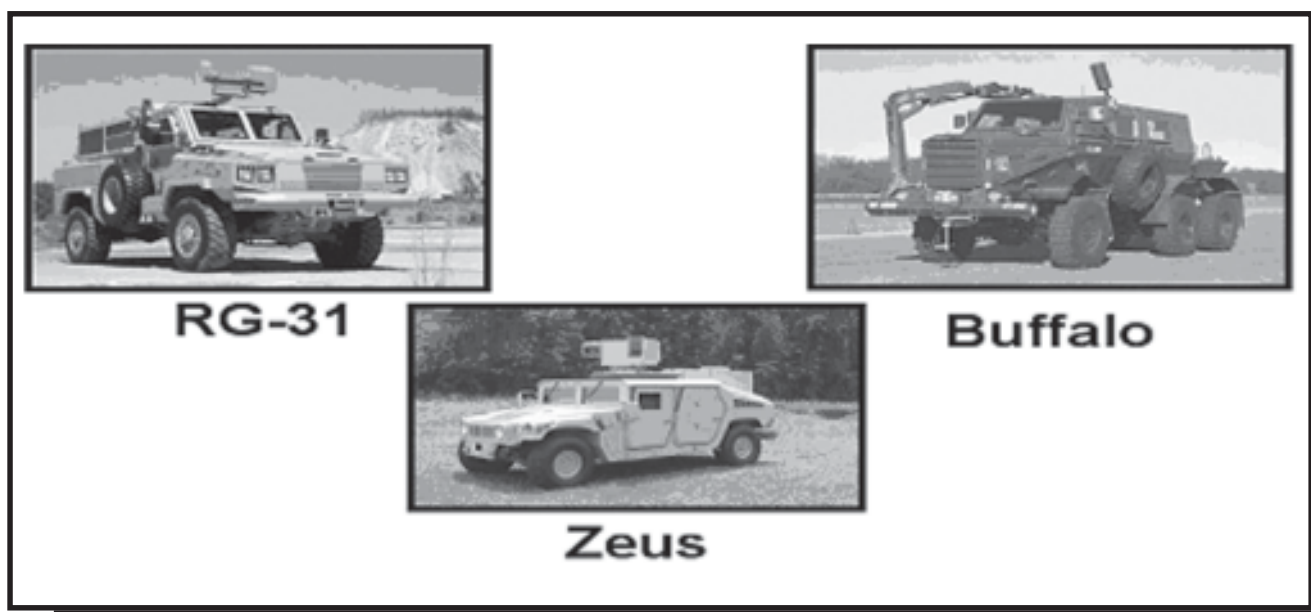


Figure 2. This Hunter-Killer team of vehicles forms an enhanced route clearance system.

(the RG-31 and the Buffalo) along with an interim vehicle-mounted mine detector (IVMMD) and supporting vehicles.

Hunter-Killer covers all five of the tenets that the JIEDD TF targets. It primarily detects EH through visual means and by metal detection with the IVMMD. The EH may be interrogated by the Buffalo and destroyed or neutralized by sappers or explosive ordnance disposal (EOD) personnel. Additionally, it can detect certain types of radio-controlled IEDs through the use of sensors and jamming capabilities. Finally, it has the ability to destroy EH at standoff distances, using lasers or remote weapon stations.

Hunter-Killer incorporates the integration of EOD and engineers working in concert on a specific system. During Operation Iraqi Freedom, a gap was identified between EOD and engineer capabilities. (See article on page 40.) The Engineer School and the Ordnance School have been working together to integrate EOD and engineer skills on the battlefield. One such effort is the Explosive Ordnance Reconnaissance Agent (EORA) Course. This course is non-military occupational specialty (MOS)-specific, but has specialized training that enhances the ability to identify, mark, and report EH that will eventually be included in route clearance platoons of clearance companies.

The next level in the EH tiered-training approach is the Explosive Ordnance Clearance Agent (EOCA) course. This program trains an engineer NCO in limited battlefield disposal of EH, and upon graduation, the soldier is awarded an additional skill identifier (ASI). There is an annual proficiency requirement to retain the identifier.

Other EOD/engineer integration efforts include the Explosive Hazards Coordination Detachment, which is responsible for analyzing EH incidents,

providing technical advice on EH, and creating and maintaining EH databases. The detachment includes the Explosive Hazards Coordination Cell (EHCC) and the Explosive Hazards Team (EHT). Each EHT is led by an EOD branch-certified captain and assisted by an EOD sergeant first class.

These are a few of the initiatives that CEHC and the Engineer School are engaged in to help our military defeat IEDs and EH while they fight the Global War on Terrorism. A common component of asymmetrical warfare is that the threat will continue to change and evolve as new TTP and devices to defeat US forces are explored. To predict and anticipate threat, our development of counter-measures must remain a constant evolution. Each of us can make a difference, and we must continue to evolve in order for our nation to remain a global leader of democracy. Change is an ongoing project that has no end: each battle fought relinquishes lessons learned and a better approach for the next battle.



Mr. Baker is the liaison officer for the Counter Explosive Hazards Center to the Joint Improvised Explosive Devices Defeat Task Force in Washington, DC. He served 21 years in the Army as a combat engineer. He holds a degree in human resource management from Park University.

Mr. D'Aria was the US Army Engineer School and Training and Doctrine Command senior engineer threat intelligence analyst from 1988 until his recent assignment as the technical director for the Counter Explosive Hazards Center. He served 10 years in the Army as a military police officer and Army aviator. His background is in combat developments, instruction, and training development.